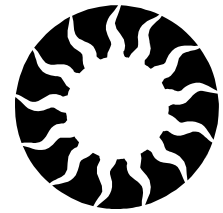


Weather Watcher

www.wrh.noaa.gov/Spokane



An Early Taste of Winter

The signs were there: the squirrels busily preparing their winter retreats and the bright golden stripe on the woolly bears. The cool nip was in the air as the days got shorter. Winter was fast approaching, but just how quickly was anyone's guess.

The Inland Northwest received its first taste of winter on the 8th of November. After 18-24 hours of snowfall, a blanket of 2-6 inches of snow was widespread from the Methow Valley across the Columbia Basin to Spokane, Coeur d'Alene, the Palouse, the Silver Valley and the Camas Prairie. Nearly everyone in the Inland Northwest shared in the winter wonderland. By the morning of the 9th, the Spokane Airport reported a snow depth of 5 inches.

On average, snow arrives in the Spokane area around Thanksgiving. So having this much snow so early in the season was a significant event, but actually it has happened before. There have been only three other events that brought more snow to the Spokane Airport in a 24-hour period as early as Nov 8th. In 1985, 8.1" inches of snow fell by Nov 9th. Records for the Palouse and Camas Prairie also revealed this storm ranked in the top five 24-hour snowfalls by Nov 8th for those locations, as well. The 4.4" of snow recorded at the Spokane Airport on Nov 8th, 2000 is the most snow that has ever been measured on that day. The old record was

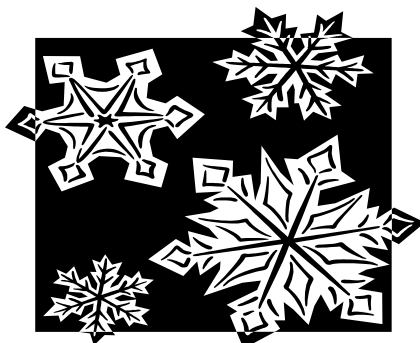
4.0" set in 1985.

How did this all happen? With cold air seeping across the Continental Divide into the Inland Northwest, a storm in the

Top 5 Biggest Snowfalls by November 8th in Spokane

11/04/1973	9.0"
10/22/1957	5.9"
11/04/1994	5.2"
11/08/2000	4.4"
11/08/1985	4.0"

Gulf of Alaska was heading toward Washington. The storm was weak through the 7th, however it quickly gathered strength during the eve of the Presidential Election. By the morning of the 8th, the low pressure system developed into a full fledged storm, deepening over Washington and pulling more cold air from the northeast. These factors and a stream of Pacific moisture accompanying the storm lead to widespread snow over the area. The low pressure system stalled over Washington and remained stationary into the 9th. Although the snow never fell heavily, it was steady allowing the snow to add up. More cold air seeped into the region as the storm pulled away, keeping the snow pack well intact. For more background and information on this storm and other recent storms affecting the Inland Northwest, visit the NWS Spokane web page at www.wrh.noaa.gov/spokane/events.htm ☀ Don Moore



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Editor's Notes

A new look! We have made some changes to the format of our newsletter. Hope you enjoy it.

If there is something you would like to see in the next newsletter or if you have comments about a previous issue, please contact Editor Robin Fox. By phone at (509) 244-0110 or email at robin.fox@noaa.gov.

The main purpose of this publication is to keep our users informed about our services and programs, and to recognize those who help us accomplish our mission. Weather spotters and observers, in addition to our friends in the media and emergency management, will continue to be an extremely valuable part of the NWS mission.

All articles are written by the NWS staff. A special thanks goes to Ron Miller, Don Moore, Robert Bonner, Ken Holmes and the NWS Spokane Amateur Radio Liaison, Mary Moore for their contributions. ☀ Robin Fox

Balloons and Tornadoes Draw Crowds in Spokane



Aspiring storm chasers like tornadoes in bottles.

The NWS Spokane held an Open House on a cool and partly sunny Saturday, Oct. 14th. Thanks to terrific support and advertising from the media, more than 700 folks from across eastern Washington and north Idaho came through our doors. One of the biggest draws was the tornado simulator, affectionately called "Twister". Built from scratch using a how-to video, the black tornado machine spewed one water vapor vortex right after another. This presentation, along with several tornado-in-a-bottle experiments and severe weather videos, gave the staff the opportunity to discuss the many weather hazards across the Inland NW. A map and background information on the weather spotter network were also displayed along with preparedness brochures.

Another big highlight was the launching of the radiosonde. A special release was performed at 10 am, in addition to the normal 4 pm time. Crowds gathered around the upper air building during both announced times to watch and cheer on the weather balloon's ascent. The Open House was a huge success! Visit our virtual office tour at www.wrh.noaa.gov/spokane/spotters/opnhse_00/page1.htm. Enjoy! ☀ Robin Fox

Trivia Answer: According to the Spokane records for Dec. 25th, there was 23 inches on the ground in 1951 and 19 inches on the ground in 1996.

Winter ROSA Reports and Reminders

Cooperative observations have always been an important function in fulfilling the climate records for the country. In the past, these daily reports were mailed to the NWS at the end of each month for tabulation and retention. Although these observations are a reliable source of data, they could not be used in real time.

Snow on the Ground	CODE (68)
No snow	680#
0.4" (trace)	68*001#
0.5" (1 inch)	681#
1.7" (2 inch)	682#

Today, about half of the cooperative observers send in their daily observation via telephone to their local NWS office. This process is called ROSA, meaning Remote Observations System Automation. This allows the NWS to use the reports of temperature, precipitation and snowfall to fine-tune forecasts and warnings. They also provide an important supplement to the official data outside of the airport observations.

New Snow	CODE (69)
None	690*0#
Trace	69*001#
0.1"	690*1#
2.0"	692*0#

During the winter months, the snow groups become the critical elements. Due to the implementation of automated observing equipment at many airports, the sources of snow data have decreased. By using the ROSA reports, the density of snow data increases giving a better representation of the snow cover.

As a gentle reminder to the ROSA cooperative observers, please include all new snowfall and snow depth with each observation through March 31, 2001. ☀ Robert Bonner

The tables above are examples of snow group coding used in ROSA reports.

NWS Spokane Staff

Meteorologist In Charge
John Livingston

Administrative Assistant
Rose Reilly

Warning Coordination Meteorologist
Ken Holmes

Science Operations Officer
Ron Miller

Data Acquisition Program Manager
Robert Bonner

Service Hydrologist
Charles Ross

Lead Forecasters
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Todd Carter
Jon Fox Robin Fox
Don Moore Claudia Cox

General Forecasters
Lyle Hammer
Rocky Pelatti Paul Bos
Andy Haner Tracy Cox

Hydro-Meteorological Technicians
Verne Ballard Irv Haynes
Milt Maas Stan Savoy
Larry Sossaman

Electronic System Analyst
Robert Cummings

Electronic Technicians
Merri Wallace
Robert Sumpter

Facilities Technician
Mike Belarde

Student Intern
Laurie Koch

A Cold Autumn for the Inland Northwest

Summer came to an abrupt end during the first week of September. Daytime highs dipped into the 50s and 60s for the first 5-10 days of the month. Temperatures did rebound in the middle of the month for one last warm spell, but another cold snap ensured that September 2000 would go down as a cool month. The 22° low at Spokane airport on the morning of the 23rd was a record low for the entire month of September. Rainfall was below normal for Wenatchee, but much above normal in Lewiston and Spokane.

Overall October was a beautiful autumn month. Most of the days had a good amount of sunshine with near normal temperatures. In fact, aside from a warm day on the 17th, October was fairly lacking in significant warm or cool spells. The lack of storm systems also meant below normal rainfall for the month in Wenatchee and Spokane. Rainfall was above normal in Lewiston, due in large part to a half-inch of rain on the first of the month.

The best way to describe November 2000 was "cold". In fact, it was the 2nd coldest November ever in Spokane and Wenatchee, surpassed only by the November of 1985. In Lewiston this was the 4th coldest November ever. A significant snow storm moved into the Inland Northwest on the 8th, dropping 4.4" of snow at Spokane. This was followed by a cold air mass from Canada. The low temperature of -2° at Spokane on the 11th was the coldest temperature ever so early in the season. Weak systems moved through the Inland Northwest, each depositing light amounts of rain and snow during the middle of the month. A more significant storm impacted the Inland Northwest on the 29th. The east slopes of the Cascades picked up 3-6" of new snow, while in the Basin, Palouse, and Spokane areas, there was a mix of snow and freezing rain.

So how does this bode for the winter? In a quick look at the cold snowy Novembers, in most (but not all) cases, the winter turned out to overall be colder and snowier than normal. ☀ *Ron Miller*

Wenatchee Airport	Sep	Oct	Nov	Total
Average High Temp	72.7	59.2	37.6	56.5
Departure from Normal	-3.1	-2.2	-2.4	-2.6
Average Low Temp	48.2	39.2	26.3	37.9
Departure from Normal	-2.9	-1.0	-4.5	-2.8
Total Precip	0.13	0.06	0.55	0.74

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NWS Special Event 2000

NWS Spokane, in coordination with the local Spokane County amateur radio group, participated in the 2nd Annual NWS Special Event which ran from 4 pm Friday, Dec. 1st through 4 pm Saturday, Dec. 2nd. The purpose of the event was to recognize the contributions amateur (ham) radio operators make to the NWS during severe and significant weather. It also allowed the ham radio operators the opportunity to meet the NWS staff and showcase their equipment and skills.

According to Mary Moore, Assistant Emergency Coordinator of Spokane County and amateur radio liaison to the NWS Spokane, there were 23 ham operators who volunteered during the national 24-hour event at the Spokane weather office. They worked 4-hour shifts, operating 6 radios and totaling 250 man-hours. They made 462 contacts in 46 states and 43 different NWS offices. Despite all the hard work, they had fun in the process.

This event was important because ham operators often play key roles in emergency communications. Many hams are storm spotters who provide essential eye-witness information to the NWS during periods of flooding and severe weather. The link between ham operators and emergency service agencies such as the National Weather Service, the Federal Emergency Management Agency, the Red Cross and the Salvation Army has been a long and extremely valuable one. This is one way we can recognize their valuable input. Good Job! ☀ *Ken Holmes & Mary Moore*

WEATHER SPOTTER CHECKLIST

- FUNNEL CLOUD...Watch for cloud rotation aloft
- TORNADO...Watch for rotation & damage on the ground
- HAIL...Pea-sized or larger
- HEAVY RAIN...1/2 inch in 1 hr; 1.5+ inches in 24 hrs
- SNOW...2 inches or more
- PRECIPITATION CHANGES...rain to snow, any freezing rain
- FLOODING...Of any kind. Watch for changing water levels
- POOR VISIBILITY...1/2 mile or less
- TRAVEL PROBLEMS...due to weather
- STRONG WINDS...30 mph+, or any damage
- ANY DAMAGE, INJURY OR LOSS OF LIFE DUE TO WEATHER...Include location, time and specific cause.

If you observe any of these conditions, please call the NWS Spokane

(509) 244-0435 1-800-483-4532

Or file a report online at

www.wrh.noaa.gov/cgi-bin/Spokane/start_rpt

Weather Watcher



National Weather Service
2601 N Rambo Road
Spokane, WA 99224
Phone: 509-244-0110

*Trivia: What was the most amount of snow on the ground for a white Christmas in Spokane?
(see inside for the answer)*

Be Prepared When on the road, don't get caught in the COLD!

- Fully check and winterize your car or truck before the winter season.
- Carry a winter survival kit comprised of extra clothing and blankets, flashlight, first-aid kit, knife, water and food, matches, shovel, windshield scraper, jumper cables, map and rope. A cell phone would also be handy.
- Keep your gas tank near full.
- Try not to travel alone for great distances.
- Let someone know your timetable and expected routes.
- Keep current with the latest weather forecasts and warnings.

We're on the web!
www.wrh.noaa.gov/
Spokane

Improvements in Weather Forecast Products

On November 16th, the National Weather Service implemented new changes to the zone forecasts and winter weather bulletins. Though most of the changes were merely cosmetic, the biggest change was expanding the extended forecast to 7 days! Other changes included adding spot temperature and precipitation forecasts for Moses Lake and using Pullman as the spot forecast location in the Palouse area.

In the winter weather bulletins, the changes will be more noticeable. The heavy snow criteria for the mountains of northeast Washington and north Idaho will increase to 8" in 12 hours or 12" in 24 hours. This includes elevations above 3000 feet in the following zones: IDZ001, IDZ004, WAZ037 & WAZ038. In addition, there will no longer be any snow advisories for these areas above 3000 feet. For elevations below 3000 feet from Republic to Sandpoint and south to Kellogg, the snow advisories will remain unchanged.

For the northeast Blue Mountains south of Pomeroy (WAZ031), the snow advi-

sory criteria will increase to 6-11" in 24 hours and the heavy snow warning criteria will increase to 12" in 24 hours.

There were no changes to the winter criteria in the Northern Cascades from Leavenworth and Mazama north to the BC border (WAZ042). Snow advisory values remain at 6-11" in 12 hours or 6-17" in 24 hours. Heavy snow warning values are 12" in 12 hours or 18" in 24 hours.

Wind advisories will be issued for all valley and basin elevations below 3000 feet, when non-convective winds are expected to be sustained 30-39 mph and/or gusts of 45-57 mph. All high wind warning criteria remain unchanged with 40+ mph and/or gusts 58+ mph in the lower elevations. Mountain high wind warnings include sustained winds of 50 mph and/or gusts to 75 mph. ☼ Robin Fox